

Clinical Research

Etiopathological study on cerebral palsy and its management by Shashtika Shali Pinda Sweda and Samvardhana Ghrita

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Access this article online

Website: www.ayujournal.org

DOI: 10.4103/0974-8520.115450

Quick Response Code:



Abstract

According to World Health Organization (WHO) estimation, 10% of the global population has some form of disability due to different causes; in India, it is 3.8% of the population. Nearly 15-20% of the total physically handicapped children suffer from Cerebral Palsy (CP). For India, the estimated incidence is around 3/1000 live births; however, being a developing country, the expected actual figure may be much higher. Despite the advancement in modern technology and improved neonatal care, stagnant or increasing incidence of CP has been observed, which is of great concern. As far as management or preventive aspect is concerned, no satisfactory criteria have been developed to date. The present study is based on a positive hypothesis for the efficacy of Ayurvedic treatment. The study was carried out in 16 patients, 8 in each group, namely group A (*Shashtika Shali Pinda Sweda* externally and *Samvardhana Ghrita* internally) and group B (*Samvardhana Ghrita* internally) for 35 days duration. In group A, moderate improvement, mild improvement, and no improvement were observed in 50%, 37.5% and 12.5% of patients respectively. In group B, moderate improvement and mild improvement were observed in 75% and 25% of the patients respectively. Statistical significance of results on selected criteria showed the efficacy of the selected Ayurvedic treatment modality in relieving the signs and symptoms of CP. Although it is incurable, Ayurvedic science can provide a better direction by improving the quality of life of children with CP with better life expectancy.

Key words: Cerebral palsy, *Samvardhana Ghrita*, *Shashtika Shali Pinda Sweda*

Introduction

Disabled children are of great concern to a family as well as to the society. When disability is discussed, particularly in children, about a quarter of chronic childhood problems are neurological in origin. Cerebral palsy (CP) is the leading cause of chronic disability in children,^[1] making them physically and mentally handicapped and socially aloof. The worldwide incidence of CP is approximately 2 to 2.5 cases per 1000 live births.^[2] In India, it is estimated at around 3 cases per 1000 live births; however, being a developing country the actual figure may be much higher than probable figures. There are about 25 lakh CP children in India as per the last statistical information.^[3] It is a symptom complex or syndrome condition rather than a single disease. It is an umbrella term encompassing a group of non-progressive, non-contagious condition that causes

motor impairment syndrome characterized by abnormalities in movement, posture, and tone.^[4] In short, it is a group of symptoms occurring due to the involvement of musculature, sense organs (i.e. vision, hearing, speech, etc.), and the mind, including intelligence at variable extents. It can be caused by any of pre-natal, natal, and post-natal factors and the primary eventual pathology is any type of injury to the developing brain. Due to the non-progressive nature of the lesion, historically it is considered as static encephalopathy and excludes all the progressive neurological disorders.^[5] No effective treatment for the underlying brain damage has been formulated to date. All the sophisticated technologies and highly expensive and complicated therapies in the medical research field have failed to find a definite cure for this disease.

There is no similar disease or symptom complex in Ayurveda that is synonymous to CP. While observing the etiology and clinical features, the predominance of *Vata* is obvious, and this classifies this disease entity closer to *Vata*-dominant conditions (i.e. *Vata Vyadhi*). Whereas etiology is concerned, about 75% factors are prenatal in origin.^[6]

Causative factors such as inappropriate *Ritu*, *Kshetra*, *Ambu*

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and Bija,^[7] Dauhrida Avimananat,^[8,9] (negligence of pregnancy craving), presence of Garbhopaghatakarabhava^[10,11] incompatible Garbha Vriddhikarabhava,^[12] and improper following of Garbhini Paricharya,^[13,14] may have undesirable effect on the fetus in-utero. These hamper the normal growth and development of the child and cause several diseases, deformities, and even death. The mentioned classical references provide an idea about some of the factors or events that result in the occurrence of such comorbid conditions, including CP. Preventive aspects are given more emphasis to limit their occurrence and this can be said to be the only way of coping up with diseases that have a higher prevalence with no definite cure option available.

The use of Panchakarma procedures and specific oral medications have been found to improve clinical practices and ongoing researches compared with only oral medication or physiotherapy. Considering this, it is planned to study the effect of Abhyanga and Shashtika Shali Pinda Sweda (SSPS) along with internal administration of Samvardhana Ghrita in cases of CP.

Materials and Methods

Patients

Patients of CP attending the Outpatient Department (OPD) of Kaumarabhritya, I.P.G.T. and R.A., Jamnagar were selected for the present study. Written informed consent was obtained from parents for each patient prior to the study.

Diagnostic criteria

Children with complaints of spasticity or dysfunction in limbs and delayed developmental milestones and already diagnosed cases of CP were selected for this study.

Inclusion criteria

1. Children with CP upto 10 years of age
2. Children with developmental delay and disability with mild, moderate, or severe degree.

Exclusion criteria

1. Children >10 years of age
2. Children with severe infectious diseases such as TB, meningitis,
3. Children with any major congenital malformations such as Congenital Heart Disease (CHD).

Treatment schedule

Group A

- Abhyanga with Bala Taila (20 min) + SSPS (20 min) for 14 days
- After 7 days of interval, the course of Abhyanga with Bala Taila + SSPS for 14 days was repeated.

Along with the procedures internal medication of Samvardhana Ghrita for 35 days.

Group B

Internal medication of Samvardhana Ghrita for 35 days.

Posology

Dose of Samvardhana Ghrita was determined by using reference of Sharangadhara Samhita after converting the ancient unit of measurement, i.e. Masa into grams.^[15]

Dose of Samvardhana Ghrita (according to age group of Patient- if required).

Age group (years)	Dose (once/day)
1-3	2.5 g
4-7	6 g
8-10	9.5 g

Anupana : Honey

Duration : 35 days

Follow-up : 2 months

Shashtika Shali Pinda Sweda

Decoction of Bala	1 l
Milk (preferably cow milk)	1 l
Shashtika Shali	100 g (approx. measurement)
Four pieces of cotton cloth	15" × 15" (approx. measurement).

Pre-procedure

The rice is cooked in the decoction of Bala and milk until the consistency becomes similar to Payasa; after this, boluses (pinda/pottali) are prepared.

Main procedure

The boluses are then kept in the decoction mixture of Bala and milk in the vessel being continuously heated on stove. Sufficient heated bolus is massaged all over the body for sudation after Abhyanga with medicated oil. Abhyanga with Bala Taila was carried out for 20 min. Relay of warm boluses with cold ones should be continuously carried out for 20 min, with 10 min for each side. Before applying the bolus, it was checked for suitable temperature.

Post-procedure

After the massage, the paste of rice was gently wiped out from the body. The patient should be allowed to take rest at a place where there is no direct air contact and then take bath with warm water.

Samvardhana Ghrita

"Samvardhana Ghrita" is described in the Lehadhyaya chapter of Kashyapa Samhita. The drugs were processed in ghee with the classical method [Table 1]. Samvardhana Ghrita is mentioned for the healthy and rapid growth of child, free of any disease, and for improving or treating the impaired conditions in those who are Pangu (lame), Muka (dumb), Ashruti (deaf), and Jada (idiot).^[17]

Assessment Criteria

Assessment criteria include motor milestones and GMFCS level for motor function level. Suitable scoring pattern was prepared for fine motor, language, and personal and social criteria for developmental milestones as below:

Gross motor

1. Centre for Disease control and prevention (CDC) grading for motor milestones
 - (a) Head holding:
 - Grade 0 – No head-holding at all
 - Grade 1 – Head erect and steady momentarily
 - Grade 2 – Supine; lifts head when pulled up by arms
 - Grade 3 – Prone; elevates self by arms and chest
 - Grade 4 – Holds head steady when moved around
 - Grade 5 – Head balanced always.

Table 1: Ingredients of Samvardhana Ghrita

Ingredients	Latin name	Part used	Qty
Khadira	<i>Acasia catechu</i> Willd.	Heart wood	1/7
Prishniparni	<i>Pseudarthria viscida</i> Desv.	Whole plant	1/7
Syandana	<i>Ougenia dalbergiodes</i> Benth.	Stem bark	1/7
Bala	<i>Sida cordifolia</i> Linn.	Whole plant	1/7
Atibala	<i>Abutilon indicum</i> Linn.	Whole plant	1/7
Kebuka	<i>Costus speciosus</i> Smith.	Rhizome	1/7
Saindhava	Sodium chloride	-	1/7
Kshira	Milk	-	1
Ghrita	Ghee	-	½
Jala	Water	-	4

- (b) Sitting:
 - Grade 0 – Not sitting at all
 - Grade 1 – Sits momentarily
 - Grade 2 – Sits for 30 s or more leaning forward
 - Grade 3 – Sits with the child's back straight
 - Grade 4 – While sitting, can manipulate a toy
 - Grade 5 – Raises self to sitting position
- (c) Standing:
 - Grade 0 – Does not stand at all
 - Grade 1 – Stands holding furniture momentarily
 - Grade 2 – Takes a few steps, both hands hold
 - Grade 3 – Without support, can stand alone
 - Grade 4 – Stands up, all by himself by throwing weight on arms
 - Grade 5 – Takes a few steps without support.
2. Gross Motor Function Classification system for Cerebral Palsy (GMFCS) Level.^[16]

Fine motor

Grade

- 0 – No grasping at all/absent palmer grasp
- 1 – Tries to reach and holds thing with crude methods
- 2 – Tries to reach and holds things with good grip
- 3 – Transfers object from one hand to another hand
- 4 – Uses thumb and index finger and holds small object
- 5 – Uses end of thumb and index finger/neat pincer grasp.

Language

Grade

- 0 – Unable to speak or produce sound at all
- 1 – Marked cooing
- 2 – Monosyllable
- 3 – Bisyllables
- 4 – Two words with meaning
- 5 – Makes simple sentence.

Personal and social

Grade

- 0 – Absent social smile and recognition
- 1 – Social smile and recognition
- 2 – Recognizing mother
- 3 – Anxiety in front of a stranger
- 4 – Attachment toward a toy and displeasure on taking it away
- 5 – Resists if toy is pulled
- 6 – Mimicry, understands spoken words and responds in an appropriate manner.

Overall effect of therapy

1. Maximum improvement: More than 75% improvement of clinical signs and symptoms
2. Moderate improvement: More than 50-75% improvement of clinical signs and symptoms
3. Mild improvement: More than 25-50% improvement of clinical signs and symptoms
4. No improvement: Equal or less than 25% improvement of clinical signs and symptoms.

Statistical analysis was carried out by using the Student unpaired 't' test.

Observations

Maximum (87.5%) patients were below 4 years of age. Among all the registered patients maximum, (62.5%) were male, 37.5% belonged to lower-middle class. As per obtained maternal antenatal history, infection was found in 12.5%, trauma in 18.75%, vaginal bleeding in 18.75%, hypertension in 31.25%, hyperemesis in 62.5%, and multiple pregnancies in 12.5% patients. Physical exertion and mental stress were observed in 31.25% patients.

Mode of delivery was normal in 56.25%, lower segment caesarian section in 18.75%, using forceps in 6.25% and vacuum extraction in 18.75% patients. Pre-term birth was observed in 25%, whereas full-term birth was in 75% patients. Maximum, 93.75% deliveries was conducted at hospitals. Low birth weight (LBW <2.5 Kg) was found in 56.25% patients. History of delayed cry was observed in 68.75% of patients. Probable risk factors for CP and natal history components were observed in 16 patients of CP as follows: cord around neck in 6.25%, meconium aspiration in 6.25%, prolonged labor in 6.25%, birth asphyxia in 31.25%, septicemia in 12.5%, convulsion in 56.25%, fever in 6.25%, jaundice in 31.25% and hypoglycemia in 12.5% patients. 87.5% patients required hospitalization, 68.75% patients were subjected to resuscitation, and 31.25% patients required incubation.

The major complaints and other signs and symptoms of CP such as developmental delay in 100%, feeding problems in 93.75%, language impairment in 100%, vision problem in 62.5%, problems in 31.25%, and mental retardation in 81% of patients were observed. Spasticity in 93.75%, contractures in 62.5%, convulsions in 68.75%, behavioral disorders/autistic features in 12.5%, and abnormal movements were observed in 31.25% of patients. Impaired coordination observed in 100%, impaired consciousness in 43.75%, impaired orientation in 81%, impaired attention 68.75%, and poor head growth (microcephaly) were observed in 68.75% patients.

Maximum (93.75%) patients had spastic type of CP, whereas only 6.25% was found ataxic type of CP. Among 15 patients of spastic CP, 80% were of quadriplegic, 13.33% were of hemiplegic, and 6.67% of diplegic type CP. Mild symptoms observed in 6.25%, moderate in 12.5%, and severe types of symptoms were observed in 81% patients. History of recurrent respiratory tract infection was observed in 75% patients and 100% patients did not have bowel and bladder control. Common Gastrointestinal tract problems such as feeding difficulties were faced by 93.75% of the patients, and excessive salivation and constipation were observed in 62.5% of patients.

Positive family history was observed in 12.5% patients. History of consanguinity observed in 18.75%, fetal loss in 37.5%, and primiparity of the mother was in 56.25% patients. Treatment history showed use of Anti-Epileptic Drug (AED) in 68.57% and muscle relaxant in 43.75%. History of any surgery for spasticity was observed in 12.5% and physiotherapy was continued by 75% of patients, except for the course of this treatment including the follow-up period.

Results

Group A showed highly significant results ($P < 0.001$) in standing, fine motor skills, language functions, head-holding and personal and social activities, whereas significant results ($P < 0.05$) were achieved in the sitting parameter. Only one parameter, i.e. change in GMFCS level, showed insignificant ($P < 0.1$) result [Table 2]. Group B showed highly significant results ($P < 0.001$) in head-holding, sitting, fine motor, language, and personal and social activities. Standing and change in GMFCS level showed insignificant ($P < 0.1$) results [Table 3].

In group A, improvement in muscle power and decrease in muscle tone were observed with highly significant results ($P < 0.001$). Decrease in Deep Tendon Reflexes was significant ($P < 0.05$) and increase in bulk was insignificant ($P < 0.1$) [Table 4]. Group B showed insignificant ($P < 0.1$) improvement in all four motor system components [Table 5]. In group A, 50% patients showed moderate improvement, 37.5% patients mild improvement, and 12.5% patients no

improvement. In group B, 75% patients showed moderate improvement, and 25% patients showed mild improvement [Table 6]. Improvement in the clinical signs and symptoms indicates the impact of Ayurvedic treatment in CP.

Discussion

The greater number of male patients (62.5%) supports the higher prevalence in male.^[18] Mild increased prevalence seen in the lower middle class may be due to factors such as less health consciousness, unhygienic environment, and deficiency in proper antenatal and obstetrical care, which might have a probable relation to the higher incidence of CP.^[19]

Infections during the antenatal period can cause brain damage and CP. It is found that Toxoplasmosis, Other infections, Rubella, Cytomegalovirus and Herpes simplex (TORCH) and other infections in the expectant mother can injure the developing fetus and frequently associated factors, thereby leading to CP.^[20] Physical trauma to the mother during pregnancy is a strong antenatal factor of CP in children.^[21] History of vaginal bleeding during pregnancy in the present study supports the reported research data. Vaginal bleeding during pregnancy is reported to be a significant risk factor for neonatal encephalopathy associated with birth asphyxia.^[22] Studies have also revealed the association between antepartum hemorrhage and CP.^[23,24] A high incidence of fetal distress in labor has been recognized in chronic hypertension along with several illnesses, thereby providing a stronger correlation between increased incidence of CP and maternal hypertension.^[25]

Table 2: Effect of therapy on assessment criteria in group A

Assessment parameters	Mean score			% of relief	SD	SE	't'	P
	BT	AT	X					
Head holding	2.63	4.63	2	43.24	1.77	0.63	3.19	<0.01**
Sitting	1.88	3.38	1.5	44.44	1.51	0.54	2.81	<0.05*
Standing	0.88	2.5	1.62	65	0.92	0.32	5.02	<0.001**
GMFCS level	4.13	4	0.13	3.13	0.35	0.13	1	<0.1
Fine motor	0.5	3.63	3.13	86.21	0.83	0.30	10.59	<0.001**
Language	0.88	2.63	1.75	66.67	0.71	0.25	7	<0.001**
Personal and social activities	3.25	5.13	1.88	36.59	1.46	0.52	3.64	<0.01**

**Highly significant, *Significant, SD: Standard deviation, SE: Standard error, BT: Before treatment, AT: After treatment, GMFCS: Gross motor function classification system for cerebral palsy

Table 3: Effect of therapy on assessment criteria in group B

Assessment parameters	Mean score			% of relief	SD	SE	't'	P
	BT	AT	X					
Head holding	0.63	3.13	2.5	80	1.20	0.42	5.92	<0.001**
Sitting	0.63	2	1.38	68.75	0.92	0.32	4.25	<0.001**
Standing	0.13	0.25	0.12	50	0.35	0.13	1	<0.1
GMFCS level	5	4.75	0.25	5.26	0.46	0.16	1.53	<0.1
Fine motor	0.25	1.63	1.38	84.62	1.06	0.38	3.67	<0.001**
Language	0.5	1.63	1.13	69.23	0.83	0.30	3.81	<0.001**
Personal and social activities	1.13	2.75	1.63	59.09	1.30	0.46	3.53	<0.001**

**Highly significant, *Significant, SD: Standard deviation, SE: Standard error, BT: Before treatment, AT: After treatment, GMFCS: Gross motor function classification system for cerebral palsy

Table 4: Effect of therapy on motor system in group A

Components of motor system	Mean score			% of relief	SD	SE	't'	P
	B.T.	A.T.	X					
Muscle power	1.38	3.13	1.75	56	0.46	0.16	10.69	<0.001**
Muscle tone	2	0.88	1.12	56.25	0.35	0.12	9	<0.001**
Bulk	13.46	13.94	0.48	3.41	0.99	0.35	1.35	<0.1
Deep tendon reflexes	2.63	2.13	0.5	19.05	0.53	0.19	2.64	<0.05*

**Highly significant, *Significant, SD: Standard deviation, SE: Standard error, BT: Before treatment, AT: After treatment, GMFCS: Gross motor function classification system for cerebral palsy

Table 5: Effect of therapy on motor system in group B

Components of motor system	Mean score			% of relief	SD	SE	't'	P
	B.T.	A.T.	X					
Muscle power	1.88	2.63	0.75	28.57	2.75	0.97	0.77	<0.1*
Muscle tone	2.38	2.13	0.25	10.53	2.48	0.88	0.28	<0.1*
Bulk	12.97	13.25	0.28	2.08	2.46	0.87	0.31	<0.1*
Deep tendon reflexes	3	2.87	0.13	4.17	2.49	0.88	0.14	<0.1*

*Significant, SD: Standard deviation, SE: Standard error, BT: Before treatment, AT: After treatment, GMFCS: Gross motor function classification system for cerebral palsy

Table 6: Overall effect of therapies

Assessment of result	Group A		Group B		Total	
	No.	%	No.	%	No.	%
Maximum improvement	0	0	0	0	0	0
Moderate improvement	4	50	6	75	10	62.5
Mild improvement	3	37.5	2	25	5	31.25
No improvement	1	12.5	0	0	1	6.5

Although no long-term follow-up studies have been conducted on children of hyperemetic women, few studies show that if hyperemesis lasts for a longer time or is/if left untreated, it may result in maternal nutritional deficiencies, dehydration, difficulty with daily activities, and physical and emotional stress of pregnancy on the body.^[26] These factors may ultimately disturb fetal nutrition *in-utero* and can also increase the possibilities of preterm labor, LBW of babies, intrauterine growth retardation (IUGR), intrauterine hypoxia, and other such conditions that are known causes for CP. In this study, hyperemesis was found in 62.5% of mothers and LBW of the patients was found in 60% of those mothers having hyperemesis. This observation supports the relationship of hyperemesis as a probable causative factor. The above-mentioned findings are better understood with the role of *Vata* and *Vata Prakopa* during *Garbhayastha*. Vitiating of *Vata Dosha* may hamper the growth of fetus *in-utero* and lead to LBW or other impaired conditions.

An increased risk of CP in multiple births was first described by Sigmund Freud. Earlier studies have established that there is a relatively higher risk of CP, i.e. five times for a twin and 12.7 times for triplets, in comparison to a single birth.^[27] In view of the current information about the etiological factors of CP and as reported by several studies, CP is more common in multiple births (twins, triplets, and quadruplets).^[28]

Physical exertion increases the risk for pre-term delivery and results in high incidence of CP among pre-term deliveries.^[29] In antenatal history, mental stress was observed to be equal to hypertension and physical exertion. This observation proves

the role of psychological components (i.e. mental stress) along with other physical and pathological factors. One recent study conducted by Gressens has concluded that mild stress during pregnancy may increase the chances of a child being born with CP.^[30] Furthermore, it also stated that limiting the stress during pregnancy might prove to be a cost-effective way of reducing the emotional, social, and economic burden of CP. Observations and research particulars prove the role of psychological components in causing the abnormal outcome of either CP or other anomalous conditions.

Regarding the mode of delivery, earlier reported data suggests that obstetric events pre-disposing to birth trauma include instrumental delivery and vacuum extraction.^[25] Furthermore, researchers suggested that “noxious influences at work during conception, during organ formation, during intrauterine development” pre-disposed to difficulties in labor. Another research instigated and suggested that “Insults falling on prepared soil”.^[31] These references are quite similar to the concept of *Bija* and *Kshetra*, which was raised by *Acharya Susruta* long back.^[32]

It is also that, prematurity is one of the two most important risk factors for causing CP universally.^[33] Observations of this study supports validation of this study and also commits the incidence of CP even in full-term infants.

The small number of CP cases in home delivery indicates that prior existence of pre-natal factors might be causing CP even in hospital deliveries. Home delivery is considered to increase the risk factors of CP due to factors such as non-availability of supportive care, improper management of labor, complication due to untrained midwives attending the delivery, and lack of all necessary measures for the prevention of infection.

Observed data for LBW supports earlier reports and confirms, that LBW is one of the two most important risk factors for CP.^[33] Delay in achieving respiration after birth may cause serious injury to the newborn brain by interrupting the oxygen supply.^[34] Research studies have been reported that babies who suffer a delay in the onset of respiration by 5 min or more

stand a high risk of such injury leading to CP.^[25] Findings of natal history include probable risk factors for CP, which are established contributory natal factors for developing CP. Requirement of assistive medical care is expected for those patients having natal and perinatal insult or complications.

Common symptoms and associated conditions observed in CP were found in high number in this study. It may be due to the majority of spastic quadriplegic type (75%) in which strong association of these co-morbidities is found. Spastic CP is the most common type, occurring in 70-80% of all cases.^[35] The high occurrence of spastic type signifies its higher prevalence among other types. This observation supports the data regarding the prevalence of spastic quadriplegia being more common in India. Majority of the severe degree may be due to the higher number of spastic quadriplegic type of CP. It is considered to be the most severe type of all other CPs.^[36]

Positive family history of CP may be due to the contribution of genetic factors in the etiology of CP in about 2% cases.^[5] There is a 2.5-fold increase in the occurrence of CP in consanguineous families, which also increases the possibility of existence of recessive forms of CP is reported.^[37] Regarding fetal loss, the observed findings of this study are similar to those of a recent study that explored the correlation between abortion and CP from the data of more than four million births.^[38] There is no evidence for primiparity as a causative factor, except for older age of women who are at risk of association of CP.^[25] Furthermore, there are added possibilities of prolonged labor and improper attempt for bearing down efforts in primipara. Seizures occur in 35% of patients with CP.^[39] AED was continued to control the seizure activity as rapidly as possible and prevent seizure recurrence. Muscle relaxant and physiotherapy are the prevalent treatment options for the improvement in spasticity found in treatment history.

Samvardhana Ghrita has *Kashaya*, *Madhura*, *Lavana Rasa*, and *Madhura Vipaka*, which properties contrary to those of *Vata*. *Guru-Snigdha Guna* and *Tridosha Shamaka* properties further add to *Vata Shamana*. The primary cause of *Vata* was observed; the use of this *Ghrita* improves the *Vata* level, thereby improving the parameters and clinical signs and symptoms of CP.

Brimhana, *Snighdha*, and *Vata Shamaka* properties of medicines used in *Abhyanga* and SSPS are contrary to the vitiated *Vata*. Skin is considered to be the site of *Vata* (i.e. *Sparshanendriya*). These treatment measures when applied directly on the skin lead to the correction of the deranged functions of *Vata*, which in turn corrects the impaired functions.

Group A showed better results in improving motor system skills by improving muscle power, and reducing hypertonia and tendon reflexes. This shows a comparatively more beneficial outcome of the SSPS procedure regarding improving motor system components. Major impairment of motor system is occurring in CP patients. This can help in improving the quality of life of children with CP.

Conclusion

No exact correlation of CP can be made with any disease described in modern text books. However, the role of *Vata* in etiology, disease presentation, and improvement places

this disease entity closer to *Vata Vyadhi* or *Vata*-predominant condition. The selected Ayurvedic treatment modality is highly effective in relieving the signs and symptoms and thus reducing the disability in children with CP. In this study, both groups A and B have shown better results in improving the disease condition. More prominent outcome is observed in group A in improving the motor system components, thereby leading to a more effective protocol of combined treatment.

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हिन्दी सारांश

षष्टिक शालि पिण्ड स्वेद और संवर्धन घृत का सेरेब्रल पाल्सी में एक चिकित्सीय अध्ययन

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विश्व स्वास्थ्य संघटन के अनुसार १० प्रतिशत जनसंख्या और भारत की सम्पूर्ण जनसंख्या में से ३८ प्रतिशत को किसी न किसी प्रकार की अशक्तता होती है। उनमें से लगभग १५ - २० प्रतिशत बच्चे सेरेब्रल पाल्सी से पीड़ित होते हैं। निर्धारित आंकड़ों के अनुसार भारत में प्रत्येक हजार जन्म लेते बच्चों में तीन बच्चे इस रोग से पीड़ित होते हैं और विकासशील देश होने के कारण अपेक्षित आंकड़ा और भी अधिक हो सकता है। आधुनिक टेक्नोलॉजी और विकसित नवजात शिशु परिचर्या के होते हुए भी स्थिर या बढ़ता हुआ आंकड़ा एक बड़ी चिंता का विषय है। जहाँ तक चिकित्सा और बचाव के तौर को देखा जाय तो आज तक कोई भी संतोषजनक मापदंड विकसित नहीं हुआ है। प्रस्तुत शोध आयुर्वेदिक चिकित्सा की प्रभावी सकारात्मक परिकल्पना पर आधारित है। इस शोध में १६ रुग्णों को पंजीकृत किया गया और इन्हें दो वर्ग में बाँटा गया वर्ग 'अ' और वर्ग 'ब'। वर्ग 'अ' में बाह्य षष्टिक शालि पिण्ड स्वेद तथा आभ्यांतर संवर्धन घृत और वर्ग 'ब' में मात्र आभ्यांतर संवर्धन घृत ३५ दिन के लिए दिया गया। वर्ग 'अ' में मध्यम सुधार, अल्प सुधार और असुधार क्रमशः ५०%, ३७.५%, और १२.५% रुग्णों में देखा गया। वर्ग 'ब' में मध्यम सुधार और अल्प सुधार क्रमशः ७५% और २५% रुग्णों में देखा गया। सांख्यिकी दृष्टिकोण से पूर्व निर्धारित मापदंड पर प्रभावकारी सुधार मिला। जिससे यह निष्कर्ष निकलता है कि आयुर्वेदिक चिकित्सा प्रणाली सेरेब्रल पाल्सी के लक्षणों और चिन्हों में सुधार लाने में समर्थ है। यह व्याधि असाध्य है लेकिन आयुर्वेदिक चिकित्सा विज्ञान इन बच्चों के जीवन गुणवत्ता में सुधार और अधिक अच्छा अपेक्षित जीवन प्रदान करके और अच्छी दिशा दिखा सकता है।